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197188 MLRS MISSILE NUMBERS BN-188 BN-154 BN-184 ROUND  
NUMBERS V-275/P0-1 (U) ARMY ELECTRONICS RESEARCH AND  
DEVELOPMENT COMMAND WSMR NM ATM. D C KELLER DEC 82

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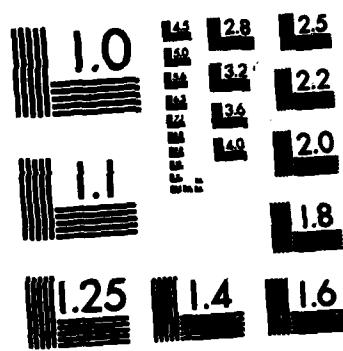
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MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

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Dec 82  
DR 1278  
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METEOROLOGICAL DATA REPORT

19318B MLRS

Missile Numbers BN-188, BN-154, BN-184  
Round Numbers V-375/PQ-100, V-376/PQ-101, V-377/PQ-102  
3 December 1982

by

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ATMOSPHERIC SCIENCES LABORATORY  
WHITE SANDS MISSILE RANGE, NEW MEXICO

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UNITED STATES ARMY ELECTRONICS COMMAND

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**UNCLASSIFIED**

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1. REPORT NUMBER DR 1278	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) 19318B MLRS Missile Numbers BN-188, BN-154, BN-184 Round Numbers V-375/PQ-100, V-376/PQ-101, V-377/PQ-102		5. TYPE OF REPORT & PERIOD COVERED
7. AUTHOR(s) White Sands Meteorological Team		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
11. CONTROLLING OFFICE NAME AND ADDRESS US Army Electronics Research & Development Cmd Atmospheric Sciences Laboratory White Sands Missile Range, New Mexico 88002		12. REPORT DATE December 1982
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) US Army Electronics Research and Development Cmd Adelphi, MD 20783		13. NUMBER OF PAGES 20
16. DISTRIBUTION STATEMENT (of this Report)		15. SECURITY CLASS. (of this report) <b>UNCLASSIFIED</b>
		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)  Approved for public release; distribution unlimited.		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number)		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) Meteorological data gathered for the launching of the 19318B MLRS, Missile Numbers BN-188, BN-154, BN-184, Round Numbers V-375/PQ-100, V-376/PQ-101, V-377/PQ-102 are presented in tabular form.		

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## INTRODUCTION

19318B MLRS, Missile Numbers BN-188, BN-154 and BN-184, Round Numbers V-375/PQ-100, V-376/PQ-101 and V-377-PQ-102, were launched from LC-33, White Sands Missile Range (WSMR), New Mexico, at 1610:09, 1610:14 and 1610:18 MST, 3 Dec 82. The scheduled launch times were 1600:00, 1600:04.5 and 1600:09 MST.

## DISCUSSION

Meteorological data were recorded and reduced by the White Sands Meteorological Team, Atmospheric Sciences Laboratory (ASL), White Sands Missile Range, New Mexico. The data were obtained by the following methods:

### 1. Observations

#### a. Surface

(1) Standard surface observations to include pressure, temperature ( $^{\circ}\text{C}$ ), relative humidity, dew point ( $^{\circ}\text{C}$ ), density ( $\text{gm/m}^3$ ), wind direction and speed, and cloud cover were made at the LC-33 Met Site at T-0 Minutes.

(2) Anemometer data were provided from existing pole-mounted and tower-mounted anemometers at LC-33. Monitor of wind speed and direction from one anemometer was also provided in the launch control room.

#### b. Upper Air

(1) Low level wind data were obtained from Pilot-balloon observations at:

#### SITE AND ALTITUDE

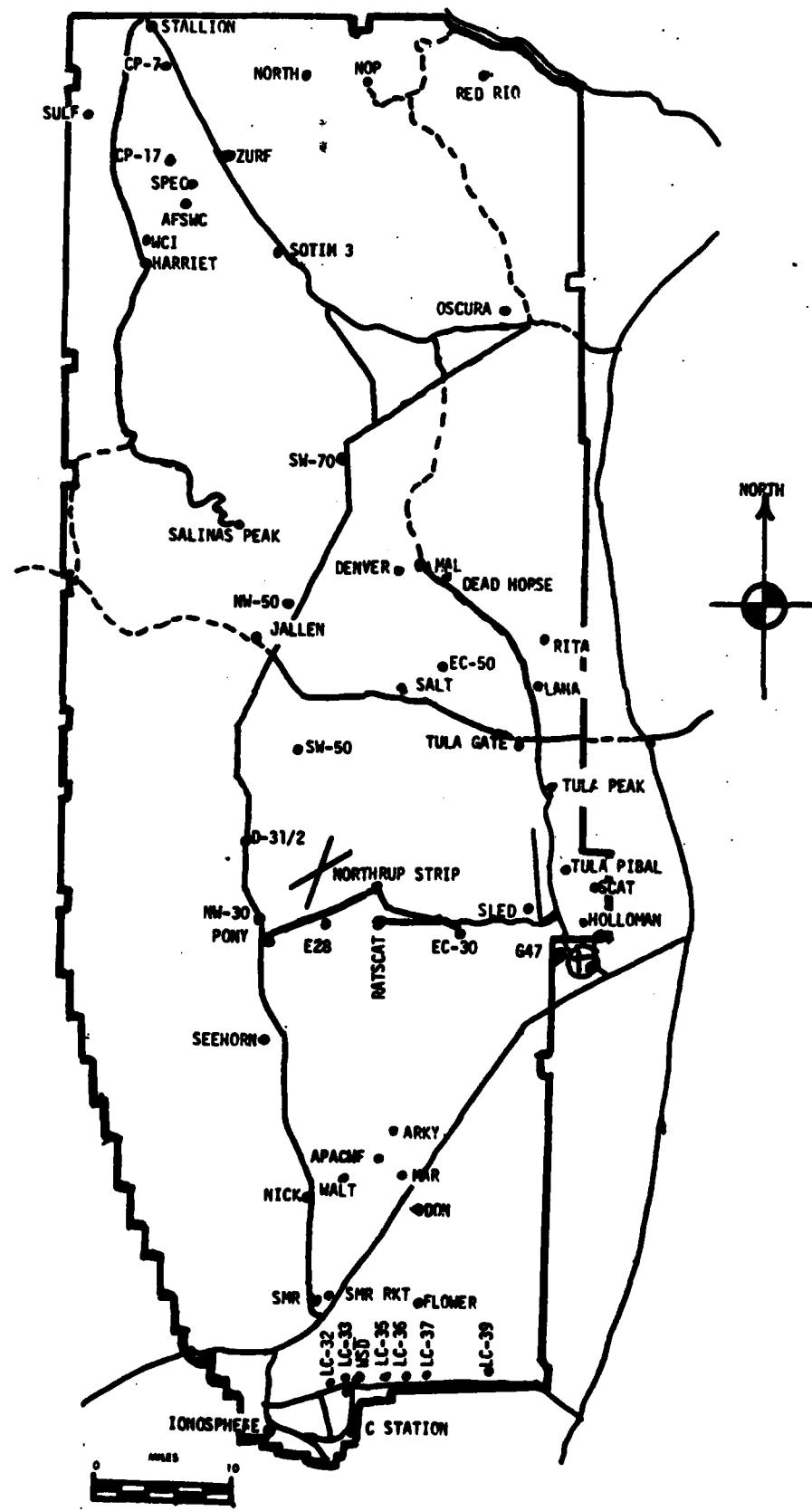
WSD 2km  
DON 2km

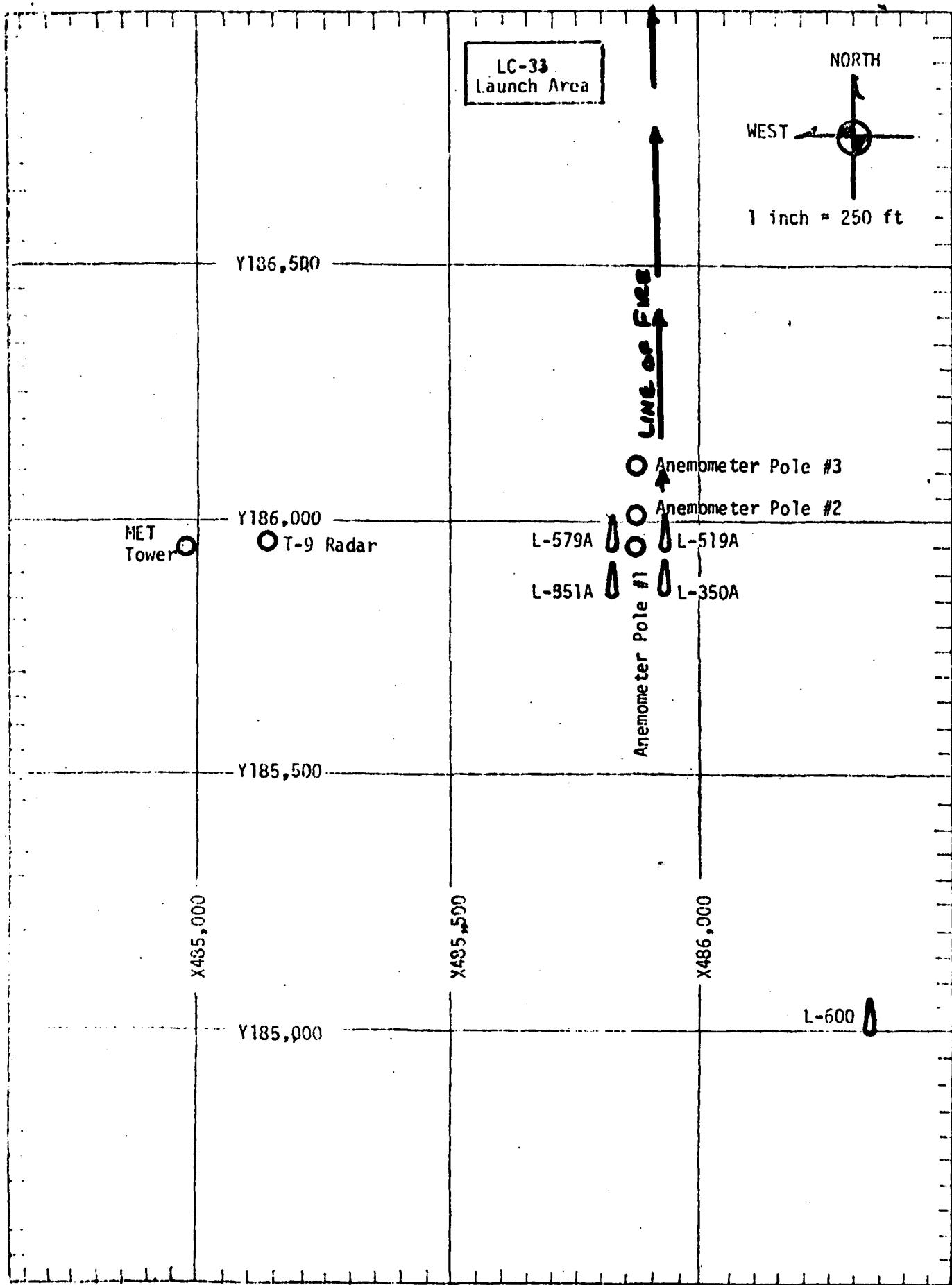
(2) Air structure data (rawinsonde) were collected at the following Met Sites.

#### SITE AND TIME

LC-37 1400 MST  
WSD 1430 MST  
WSD 1600 MST

## WSMR METEOROLOGICAL SITES





PROJECT SURFACE OBSERVATION

TABLE I

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STATION LC-33 F & A

clouds

OBSTRUCTIONS TO VISIBILITY	CLOUDS						REMARKS	
	1st LAYER		2nd LAYER		3rd LAYER			
AMT	TYPE	HGT	AMT	TYPE	HGT	AMT	TYPE	HGT
1	CU	6,000						

## PSYCHRO-ELECTRIC COMPUTATION

PSYCHROMETRIC COMPUTATION	
TIME:	1610
DRY BULB TEMP.	8.2
WET BULB TEMP.:	2.5
WET BULB DEPR.	5.7
DEW POINT	-5.4
RELATIVE HUMID.	38

TABLE 2 LC-33 FIXED POLE ANEMOMETER MEASURED WINDS

POLE #1			POLE #2			POLE #3		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T-30	020	07	T-30	013	06	T-30	015	08
T-20	020	06	T-20	013	06	T-20	015	07
T-10	025	06	T-10	012	05	T-10	015	07
T0.0	025	06	T0.0	017	05	T0.0	015	07
T+10	025	09	T+10	005	05	T+10	006	10

TABLE 3 LC-33 METEOROLOGICAL TOWER ANEMOMETER MEASURED WINDS (202 FT TOWER)

LEVEL #1, 12 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #2, 62 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T-30	016	05	T-30	004	06
T-20	018	05	T-20	004	06
T-10	024	05	T-10	010	06
T0.0	027	07	T0.0	012	06
T+10	023	06	T+10	013	07

LEVEL #3, 102 FEET X484,982.64, Y185,057.73, H3983.00 (base)			LEVEL #4, 202 FEET X484,982.64, Y185,057.73, H3983.00 (base)		
T-TIME SEC	DIR DEG	SPEED KNOTS	T-TIME SEC	DIR DEG	SPEED KNOTS
T-30	014	06	T-30	008	07
T-20	015	05	T-20	009	08
T-10	022	06	T-10	014	07
T0.0	022	07	T0.0	015	08
T+10	026	07	T+10	008	08

\* POLE #1 DIRS ARE ESTIMATED.

TABLE 4

## T-TIME PILOT-BALLOON MEASURED WIND DATA

DATE 3 Dec 82

SITE: WSD

TIME: 1610 MST

WSTM COORDINATES:

X= 488,852.29

Y= 184,982.45

H= 3,993.75

SITE: DON

TIME 1610 MST

WSTM COORDINATES:

X= 511,988.37

Y= 247,396.36

H= 3,996.83

LAYER	MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE		350	08
150		010	08
210		360	07
270		005	10
330		356	08
390		360	08
500		348	11
650		318	09
800		314	11
950		298	09
1150		320	13
1350		326	13
1550		343	17
1750		349	16
2000		357	19

Data obtained from a Nike Hercules  
Radar Tracked Pilot-Balloon observation.

LAYER	MIDPOINT METERS AGL	DIRECTION DEGREES	SPEED KNOTS
SURFACE			CALM
150		004	09
210		360	11
270		351	12
330		344	13
390		340	13
500		334	14
650		344	15
800		345	15
950		348	15
1150		357	12
1350		351	09
1550		343	10
1750		349	13
2000		005	23

Data obtained from a Single Theodolite  
Tracked Pilot-Balloon observation.

TABLE 5

AIMING AND T-TIME COMPUTER MET MESSAGES

03 Dec 82

LC-37	1400 MST	WSD	1430 MST
METCM1324063		METMC1324064	
032000124878		032050122880	
00587008	28290878	00587012	28350880
01610013	28090867	01628016	28280869
02614018	27860841	02623018	27970843
03600009	27490801	03615016	27630803
04579008	27030752	04622010	27220755
05634015	26740706	05614015	26810708
06004021	26440662	06633020	26390664
07016031	26110621	07004028	26050623
08032045	26050581	08030038	25890583
09023054	25930544	09025051	25860546

WSD	1600 MST
METCM1324064	
032200122880	
00622008	28230880
01027007	28190869
02639010	28000843
03571010	27640803
04569013	27190754
05619017	26750708
06008025	26470664
07019036	26370623
08025045	26140583
09019055	25910546

STATION ALTITUDE: 4051.37 FEET MSL  
3 DEC. 62 1400 HRS MST  
ASCENSION NO. 11A

SIGNIFICANT LEVEL DATA  
3370180118  
LC-37  
TABLE 6

GEODETIC COORDINATES  
32°40'17.5" LAT DEG  
106°31'23.2" LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE MSL FEET	TEMPERATURE DEGREES CENTIGRADE	AIR DEWPNT CENTIGRADE	REL.HUM. PERCENT
877.9	4051.4	9.3	-5.7	34.0
875.7	4119.5	7.8	-5.6	38.0
850.0	4922.8	5.7	-6.2	42.0
791.9	6807.2	.5	-10.9	42.0
738.4	8634.2	-4.5	-14.6	45.0
700.0	10011.7	-6.2	-19.1	35.0
657.5	11612.7	-9.3	-21.3	37.0
624.6	12909.4	-12.5	-22.2	44.0
604.5	13730.7	-12.5	-21.9	45.0
586.9	14471.9	-13.1	-20.8	52.0
559.4	15675.6	-12.5	-26.4	30.0
500.0	16462.5	-16.4	-33.5	25.0

STATION ALTITUDE 4051.37 FEET MSL  
3 DEC. 82 1400 HRS MST  
ASCENSION NO. 118

UPPER AIR DATA  
3370180116  
LC-37  
TABLE 7

GEOGRAPHIC COORDINATES  
32.49175 LAT DEG  
106.31232 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEWEPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DIRECTION DEGREES (TIV)	WIND SPEED KNOTS	INDEX OF REFRACTION
4051.4	877.9	9.3 -5.7	34.0	1080.9	655.3	330.0	8.0	1.000260
4500.0	863.4	6.8 -5.9	39.9	1072.6	652.4	336.1	9.8	1.000258
5000.0	847.5	5.5 -6.4	42.0	1057.6	650.9	340.6	12.0	1.000254
5500.0	831.8	4.1 -7.6	42.0	1043.5	649.2	343.7	14.2	1.000249
6000.0	816.3	2.7 -6.9	42.0	1029.3	647.5	343.4	13.4	1.000245
6500.0	801.1	1.3 -10.1	42.0	1015.3	645.9	339.3	10.0	1.000240
7000.0	786.1	-0 -11.3	42.3	1001.4	644.2	330.6	7.9	1.000236
7500.0	771.2	-1.4 -12.3	43.1	987.4	642.6	319.7	6.6	1.000232
8000.0	756.5	-2.8 -13.3	44.0	973.7	640.9	326.7	7.6	1.000228
8500.0	742.2	-4.1 -14.3	44.8	960.1	639.5	336.3	9.0	1.000224
9000.0	728.0	-5.0 -15.7	42.3	944.7	638.3	346.8	10.6	1.000220
9500.0	714.0	-5.6 -17.4	38.7	928.8	637.5	354.1	13.2	1.000215
10000.0	700.3	-6.2 -19.1	35.1	913.2	636.8	358.9	15.7	1.000211
10500.0	686.8	-7.1 -19.8	35.6	898.8	635.6	1.4	16.3	1.000207
11000.0	673.5	-8.1 -20.4	36.2	884.6	634.4	3.5	20.4	1.000204
11500.0	660.4	-9.1 -21.1	36.9	870.7	633.3	5.8	21.6	1.000200
12000.0	647.5	-10.3 -21.5	39.1	857.5	631.9	7.8	23.7	1.000197
12500.0	634.8	-11.5 -21.8	41.8	844.6	630.4	9.5	26.9	1.000194
13000.0	622.4	-12.5 -22.2	44.8	831.3	629.2	10.4	30.0	1.000191
13500.0	610.1	-12.5 -22.0	44.7	814.9	629.2	11.3	33.2	1.000187
14000.0	598.0	-12.7 -21.5	47.5	799.4	628.9	13.5	37.1	1.000184
14500.0	586.2	-13.1 -20.9	51.5	784.7	628.5	15.5	41.4	1.000181
15000.0	574.7	-12.8 -22.9	42.3	768.6	628.6	15.5	47.2	1.000177
15500.0	563.3	-12.6 -25.4	33.2	752.8	629.0	14.8	51.1	1.000172
16000.0	552.1	-13.2 -27.2	29.4	739.6	628.3	15.3	52.7	1.000168
16500.0	541.1	-14.2 -28.5	28.5	727.8	627.0	11.9	53.7	1.000165
17000.0	530.3	-15.3 -29.8	27.6	716.3	625.7	10.5	54.6	1.000162
17500.0	519.8	-16.4 -31.0	26.7	704.9	624.4	693.7	1.000160	1.000157
18000.0	509.4	-17.4 -32.0	25.8					

STATION ALTITUDE 4951.37 FF: 1 "SL  
3 IFC. 82 1403 HRS MST  
ASCENSION NO. 118

MANDATORY LEVELS  
3370180116  
LC-37  
TABLE 8

GEODETIC COORDINATES  
32.49175 LAT DEG  
106.31232 LONG DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL.HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEWPOINT CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4919.	5.7	-6.2	42.	340°0	11.6
800.0	6533.	1.2	-10.2	42.	338°9	9.7
750.0	8223.	-3.4	-13.8	44.	329°3	8.3
700.0	10002.	-6.2	-19.1	35.	359°0	15.8
650.0	11891.	-10.0	-21.4	39.	7.4	23.1
600.0	13902.	-12.7	-21.6	47.	13.0	36.4
550.0	16080.	-13.4	-27.5	29.	13.0	53.0
500.0	18437.	-18.4	-33.5	25.		

STATION ALTITUDE 3989.00 FEET MSL  
3 DEC. 82 1430 HRS MST  
ASCENSION NO. 598

SIGNIFICANT LEVEL DATA  
3370020598  
WHITE SANDS  
TABLE 9

GEODETIC COORDINATES  
32°40'43" LAT DEG  
106°37'33" LON DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE FEET MSL	TEMPERATURE AIR DEWPOINT DEGREES CENTIGRADE	REL.HUM. PERCENT
879.9	3989.0	9.7	-3.2
850.0	4925.9	6.5	-8.2
700.0	10038.6	-6.0	-21.1
635.4	12500.4	-12.3	-22.3
582.0	14696.1	-14.7	-22.3
579.4	14807.6	-14.8	-22.0
555.6	15853.6	-13.8	-30.4
500.0	16467.5	-17.8	-36.3

STATION ALTITUDE 3989.0 FEET MSL  
3 DEC. 82 1430 HRS MST  
ASCENSION NO. 598

UPPER AIR DATA  
3370020598  
WHITE SANDS  
TABLE 10

GEODETIC COORDINATES  
32.44043 LAT DEG  
106.37033 LON DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEGREES	TEMPERATURE UEMPOINT DEGREES	REL.HUM. PERCENT	DENSITY GM/CUBIC METER	SOUND SPEED KNOTS	WIND DATA DIRECTION EGRES(1IN)	INDEX OF REFRACTION
5989.0	874.9	9.7	-3.2	40.0	1081.5	655.9	350.0	12.0
4000.0	879.5	9.7	-3.3	39.9	1081.2	655.6	350.1	12.0
4500.0	863.5	8.0	-5.9	36.7	1068.2	653.7	333.3	12.0
5000.0	847.6	6.3	-8.4	33.9	1055.0	651.7	336.5	12.1
5500.0	831.7	5.1	-9.7	33.4	1039.9	650.3	339.7	12.2
6000.0	816.0	3.9	-10.9	32.9	1024.9	648.6	342.8	12.3
6500.0	800.7	2.7	-12.2	32.5	1010.2	647.3	345.9	12.4
7000.0	785.6	1.4	-13.4	32.0	995.7	645.9	347.5	12.6
7500.0	770.8	.2	-14.7	31.5	981.4	644.4	348.3	12.9
8000.0	750.3	-1.0	-16.0	31.0	967.4	642.9	349.1	13.1
8500.0	742.1	-2.2	-17.2	30.5	953.5	641.5	349.5	13.9
9000.0	728.2	-3.5	-18.5	30.0	939.9	640.0	349.7	15.1
9500.0	714.5	-4.7	-19.7	29.5	926.5	638.5	349.8	16.3
10000.0	701.0	-5.9	-21.0	29.0	913.3	637.1	350.1	17.5
10500.0	687.4	-7.2	-21.2	31.6	899.8	635.5	351.5	18.8
11000.0	674.0	-8.5	-21.3	34.5	886.6	634.0	352.6	20.2
11500.0	660.9	-9.7	-21.6	37.3	873.5	632.5	353.7	21.6
12000.0	648.0	-11.0	-21.9	40.2	860.7	630.9	357.0	23.2
12500.0	635.4	-12.3	-22.3	43.0	848.1	629.4	358.4	25.2
13000.0	622.6	-12.6	-22.2	45.0	833.0	628.7	5.1	27.3
13500.0	610.5	-13.9	-22.2	47.1	818.2	628.1	6.3	29.6
14000.0	598.4	-15.9	-22.3	49.1	803.7	627.4	11.3	33.0
14500.0	586.6	-14.5	-22.3	51.2	789.5	626.6	15.7	36.5
15000.0	574.9	-14.6	-23.1	40.3	774.2	626.6	15.2	40.0
15500.0	563.5	-14.1	-26.7	33.5	757.6	627.1	15.0	43.2
16000.0	552.3	-14.0	-30.7	22.7	742.3	627.2	14.8	46.4
16500.0	541.3	-14.8	-31.0	21.8	729.7	626.3	14.5	49.5
17000.0	530.5	-15.6	-32.9	20.8	717.2	625.3	14.0	52.0
17500.0	519.9	-16.3	-34.0	19.9	705.0	624.4	13.5	54.5
18000.0	509.5	-17.1	-35.2	18.9	693.0	623.0	13.0	57.0

STATION ALTITUDE 3989.00 FEET MSL  
 3 DEC. 82 1430 HRS MST  
 ASCENSION NO. 398

MANDATORY LEVELS  
 3370020596  
 WHITE SANDS  
 TABLE 11

GEODETIC COORDINATES  
 32.49043 LAT UEG  
 106.37033 LON DEG

PRESSURE, EUPOTENTIAL MILLIBARS	FEET	TEMPERATURE DEGREES	AIR DEPOINT CENTIGRADE	REL. HUM. PERCENT	WIND DATA	
					DEGREE	INFECTION DEGREES (TN)
856.0	4922.	6.5	-8.2	34.	336.0	12.1
800.0	6542.	2.6	-12.2	32.	346.1	12.4
750.0	8241.	-1.6	-16.5	31.	349.4	13.2
700.0	10029.	-6.0	-21.1	29.	350.2	17.6
650.0	11915.	-10.6	-21.6	40.	356.2	22.9
600.0	13920.	-13.9	-22.3	49.	10.9	32.5
550.0	16086.	-14.2	-30.9	23.	47.0	
500.0	18442.	-17.6	-36.3	18.		

STATION ALTITUDE 3989.00 FEET MSL  
3 DEC. 62 1600 HRS MST  
ASCENSION NO. 599

SIGNIFICANT LEVEL DATA  
3370020599  
WHITE SANDS  
TABLE 12

GEOODETIC COORDINATES  
32°40'04.3 LAT DEG  
106°37'03.5 LONG DEG

PRESSURE MILLIBARS	GEOMETRIC ALTITUDE FEET	TEMPERATURE DEGREES	AIR DEPOINT CENTIGRADE	REL. HUM. PERCENT
879.5	3989.0	8.6	-5.3	45.0
866.7	4386.0	8.4	-9.5	27.0
859.0	4913.1	7.0	-10.7	27.0
700.0	10025.3	-6.7	-20.2	33.0
666.7	11267.5	-9.5	-21.4	37.0
650.0	11382.1	-8.0	-21.4	33.0
589.6	14602.1	-11.6	-29.6	21.0
532.7	16928.1	-15.0	-35.1	16.0
500.0	18494.9	-17.6	-36.6	17.0

STATION ALTITUDE 3989.10 FEET MSL  
3 DEC. 82 1600 HRS MST  
ASCENSION NO. 599

UPPER AIR DATA  
3370020599  
WHITE SANDS  
TABLE 13

GEODETIC COORDINATES  
32°40'43" LAT DEG  
106°37'33" LONG DEG

GEOMETRIC ALTITUDE MSL FEET	PRESSURE MILLIBARS	TEMPERATURE AIR DEPOINT DEGREES CENTIGRADE	REL. HUM. PERCENT	DENSITY GM/CUBIC METER	SPEED OF SOUND KNOTS	WIND DATA DIRECTION DEGREES (TN)	SPEED KNOTS	INDEX OF REFRACTION.
3989.0	879.5	8.6	-3.3	43.0	1085.2	654.6	350.0	6.0
4000.0	879.1	8.6	-3.4	42.6	1084.8	654.6	349.9	6.0
4500.0	863.1	8.1	-9.7	27.0	1067.7	653.6	343.6	6.3
5000.0	847.2	6.8	-10.8	27.1	1053.1	652.2	337.8	6.7
5500.0	831.3	5.4	-11.7	27.7	1038.3	650.6	332.5	9.2
6000.0	815.6	4.1	-12.6	28.3	1023.8	649.0	327.9	9.7
6500.0	800.3	2.7	-13.5	28.9	1009.5	647.4	323.7	10.3
7000.0	785.2	1.4	-14.5	29.5	995.3	645.8	320.0	11.0
7500.0	770.4	0.1	-15.4	30.0	981.5	644.2	322.6	11.6
8000.0	755.9	-1.3	-16.3	30.6	967.8	642.6	326.5	12.7
8500.0	741.7	-2.6	-17.3	31.2	954.5	641.0	329.7	13.7
9000.0	727.8	-4.0	-16.2	31.8	941.1	639.4	336.8	14.8
9500.0	714.1	-5.3	-19.2	32.4	928.0	637.8	344.5	16.2
10000.0	700.6	-6.6	-20.2	33.0	915.2	636.2	350.5	17.6
10500.0	687.0	-7.8	-20.7	34.5	901.3	634.8	356.4	20.3
11000.0	673.7	-8.9	-21.2	36.1	887.6	633.5	1.1	23.2
11500.0	660.6	-8.9	-21.4	35.5	870.5	633.4	4.8	26.2
12000.0	647.8	-8.2	-21.7	32.5	851.1	634.4	7.4	29.4
12500.0	635.1	-8.9	-23.1	30.3	836.7	633.5	9.3	32.7
13000.0	622.7	-9.6	-24.6	28.1	822.6	632.7	10.8	36.1
13500.0	610.6	-10.3	-26.1	25.9	808.7	631.8	12.0	39.2
14000.0	598.6	-11.0	-27.7	23.7	795.1	630.9	12.4	41.3
14500.0	587.0	-11.7	-29.3	21.5	781.7	630.1	12.9	43.5
15000.0	575.4	-12.3	-30.5	20.1	768.3	629.2	12.9	45.6
15500.0	564.0	-13.0	-31.7	19.1	755.1	628.4	12.0	46.5
16000.0	552.6	-13.7	-32.9	18.0	742.2	627.6	11.1	51.2
16500.0	541.9	-14.4	-34.1	16.9	729.4	626.7		1.000164
17000.0	531.2	-15.1	-35.2	16.0	717.0	625.8		1.000161
17500.0	520.5	-16.0	-35.7	16.4	705.1	624.8		1.000159
18000.0	510.1	-16.9	-36.3	16.7	693.4	623.7		1.000156

STATION ALTITUDE 3999.00 FEET MSL  
3 ULC. 82 1600 HRS MST  
ASCENSION NO. 599

MANDATORY LEVELS  
3370020599  
WHITE SANDS  
TABLE 14

GEODETIC COORDINATES  
32.40043 LAT DEG  
106.37033 LONG DEG

PRESSURE MILLIBARS	GEOPOTENTIAL FEET	TEMPERATURE		REL.HUM. PERCENT	WIND DATA	
		AIR DEGREES	DEGREE CENTIGRADE		DIRECTION DEGREES (TN)	SPEED KNOTS
850.0	4910.	7.0	-10.7	27.	338.0	8.6
800.0	6531.	2.7	-13.6	29.	323.4	10.4
750.0	8229.	-1.6	-16.7	31.	328.1	13.2
700.0	10014.	-6.7	-20.2	33.	350.7	17.6
650.0	11901.	-8.0	-21.5	33.	7.0	28.8
600.0	13930.	-10.9	-27.5	24.	12.4	41.1
550.0	16111.	-13.9	-33.2	18.	10.9	51.6
500.0	18469.	-17.6	-36.6	17.		